

Caltech Optical Observatories / NASA Jet Propulsion Laboratory  
Palomar Adaptive Optics

Palomar LGSAO Engineering Summary 07/29/07 UT

Afternoon:

- Laser 7.0W, stable.
- BTO tested in 10 min.
- Checked performance of HOWFS timing card. Found connector to sequencer card disconnected. Appears to be functioning fine.
- Verified LOWFS acquisition calibration.
- Sky clear overhead, clouds approaching in east.

Night log:

- 1945 Opening dome for twilight flats.  
2015 Moving to SAO 064970 for NGS checkout.  
Strehl=75% in K, FWHM=0.33" in K (TT off)
- 2030 go to BS 6018 (to look at high Strehl)  
2KHz WFS  
PHARO background 62-64, star 65-104  
Strehl 78%, frame 98=80%
- 2040 Observers taking NGS data on BS 6018.  
2105 Moving to TYC 2593-0912-1 for LGS checkout.  
2112 Projecting toward TYC 2593-0912-1.  
ph 231 PH sky  
ph 232-241 star, CL, Strehl=45% (According to Pharo?)  
TTgain=0.33 (unstable above this)
- 2125 Ready for science.  
2131 Moving to first science target. CR=160.  
LGS FWHM=12x12 pix = 2.2"  
2146 Acquisition complete.  
Getting very nice looking images & interferograms.  
2224 2 IR cam shutters due to bats.  
2232 Moving to target 2.  
2250 Acquisition complete after checking webcam display.  
2300 2 aircraft detected by IR/ASCAM/RADAR @ 100us.  
2315 Shuttered due to BTO. UTT mirror ran away.  
Realized cause was running with BTO track off, which caused  
count to drop on Q3 with changing telescope HA. Happened  
twice. UTT run-away is unexplained (happened both times).
- 0005 Moving to target 3. CR=335.8  
Trouble acquiring tip/tilt star. HA=0.5h, Dec=+00.  
Commanded LOWFS position: [87312, 21383]  
Final LOWFS position: [87134, 20765]
- 0026 Acquisition complete.  
HOWFS: 120 cts @ 150 Hz  
LOWFS: 100 cts @ 50 Hz on R=16 star.
- 0135 Moving to target 4 to get away from clouds. CR=240.  
Chopper stopped in wrong position.
- 0150 Acquisition complete.  
HOWFS: 170 cts @ 100 Hz  
LOWFS: 300 cts @ 500 Hz on R=12 star 45" away.

Caltech Optical Observatories / NASA Jet Propulsion Laboratory  
Palomar Adaptive Optics

0210 Shuttering due to thickening clouds.  
0315 Projecting towards target again through a large hole in the clouds. Laser mode locking failed again. Renu coming out to investigate.  
0335 Renu got the AOMs working again. Cause of problem not clear.  
0345 Projecting again on Target 4.  
    HOWFS: 250 cts @ 100 Hz,  
    LOWFS: 300 cts @ 500 Hz on R=12 star 45" away.  
0430 Moving to target 5  
0438 Acquisition complete. New record!  
    HOWFS: 200 cts @ 100 Hz,  
    LOWFS: 400 cts @ 200 Hz on R=13 star 60" away.  
    Interesting triple system...  
0450 Shuttered for FAA compliance. Switching to NGS science.  
0455 Laser power on shutdown: 6.9 Watts.  
0500 Shutting down safety systems, laser, BTO, LLT, ...

A very successful night of LGS science.  
Congratulations to the entire team!